Building Geo-Spatial Data Portal for Optimal User Experience with CKAN Core-Bundle and OpenLayers Library

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Location: **European Commission – Joint Research Center, Ispra, Italy**

Date: **Thursday, 04 July, 2019**

CISS® TDI GmbH

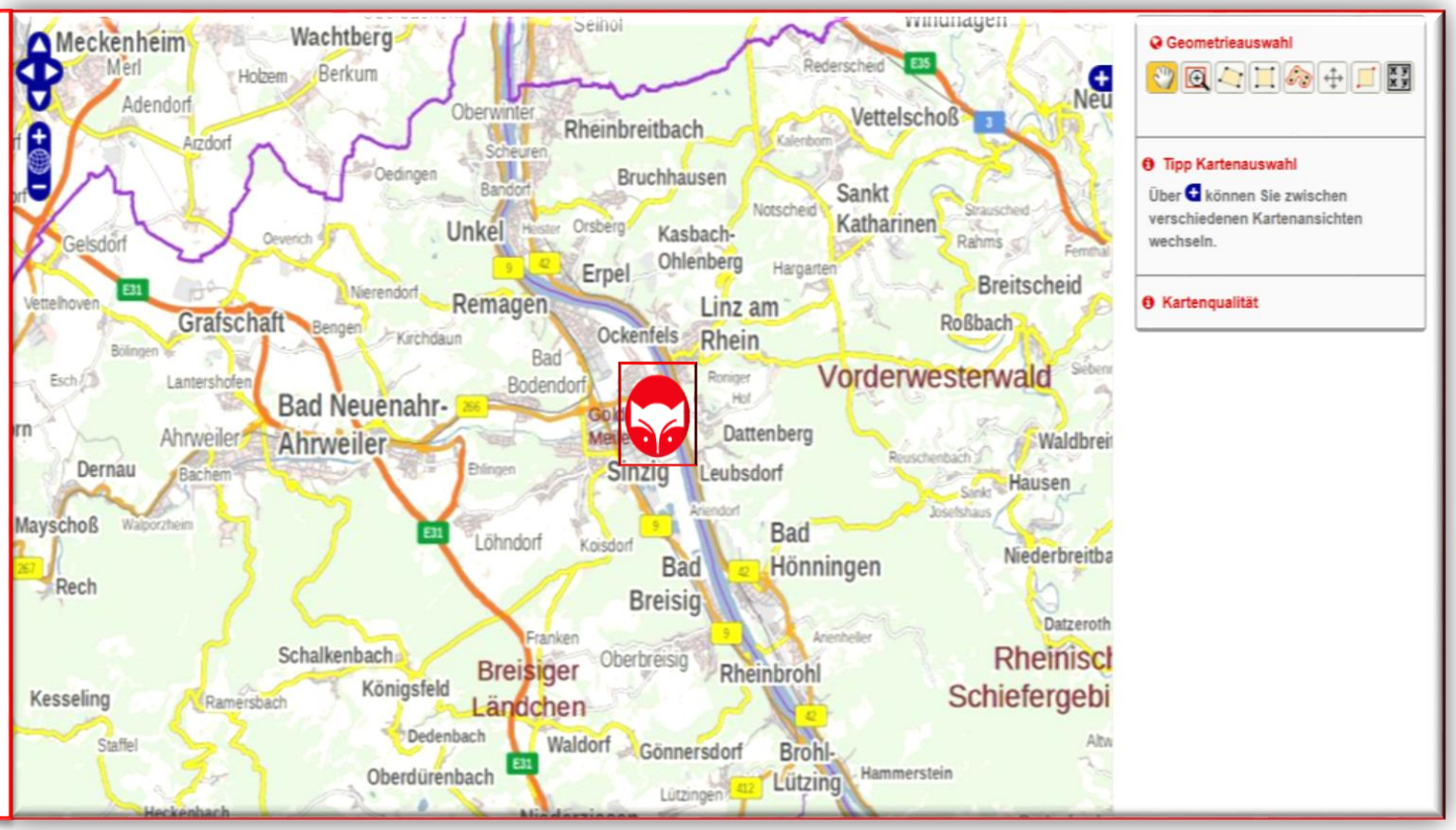
Founded: **1982**
HeadOffice: **Sinzig(Rhein)**

Core Services & Solutions:

- **Geodata Format Conversion**
- **Geodata Migration**
- **Geodata Warehouse**
- **Geodata Distribution**
- **Geodata Sales**
- **Geodata Quality Assurance**

Contact Us:

- https://www.ciss.de/
- **+49 (0) 2642 9780 – 11**
- **vertrieb@ciss.de**



Some reference sites with our deployed GeoSolutions

- https://lvermgeo.rlp.de/de/startseite/
- https://www.sit.nrw/
- https://www.itk-rheinland.de/
- https://www.kreis-re.de/Inhalte/index.asp

Synopsis

- **The Alpha**
  - Intros, Goad, and Genesis
    - X-4.0
    - LIMBO
- **The Architecture**
  - Core Module
  - Dependencies
- **The Blueprint**
  - Baseline modules
  - Transformations and Indexing *(Serialize PHP → Unserialize PHP → GeoJSON → Spatial Search)*
  - Metadata Quality Check – CISS® QAC API

- **X - 4.0**
- **X-4.0 ($\frac{\delta y}{\delta x}$)[BMVI]** [1.2] **= LIMBO**[1.0][1.1]
- **($\frac{\delta y}{\delta x}$)[LIMBO research works] = mCLOUD**[1.3]
- **CISS® Open-Data Portal** stems from the concept of mCLOUD, *plus*
  - **Integration with the CISS® GeoShop - ecommerce perspective**
  - **Metadata quality check on the datasets via the CISS® Quality Assurance Center (CISS® - QAC) API**

References:

[1.0] https://www.limbo-project.org/
[1.1] https://www.ciss.de/forschung/limbo/
[1.2] https://www.bmvi.de
[1.3] https://www.mcloud.de/

{ In the context of Spatial Data & Geographical Locations }

SHOP SYSTEMS	CKAN
Customer_Data ∝ *Lat-Lng position*	*Dataset* ∝ *User_Data* ∃ *Metadata {{ Dataset }}*
Product_Data ∝ *Lat-Lng position*	
. . .	. . .

The Architecture

- Core Modules
- Dependencies

- Core Module → Contao-CMS[2.0]
- Extension – **CISS® Geo-shop Module**[2.1] → *GeoData conversion services*
  - Real-Estate Cadastral Information Systems
  - Topographic Map services
  - Orthophotos/Aerial Maps

Serialized PHP

```
a:1:{s:3:"wkt";s:223:
"POLYGON&amp;#40;&amp;#40;373511.34681746
99 5567243.12439547,380841.08706572774
5567243.12439547,380841.08706572774
5573962.0529563725,373511.3468174699
5573962.0529563725,373511.3468174699
5567243.12439547&amp;#41;&amp;#41;";}
```

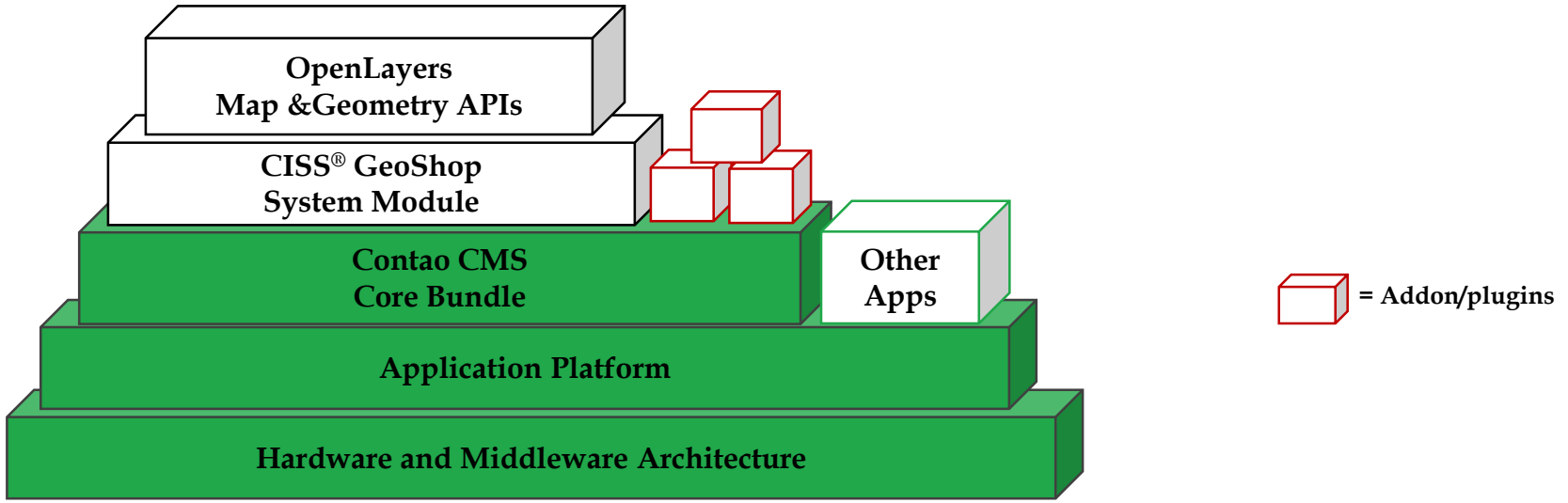

References:

[2.0] https://contao.org/en/

[2.1] https://shop.ciss.de/home.html

The Architecture

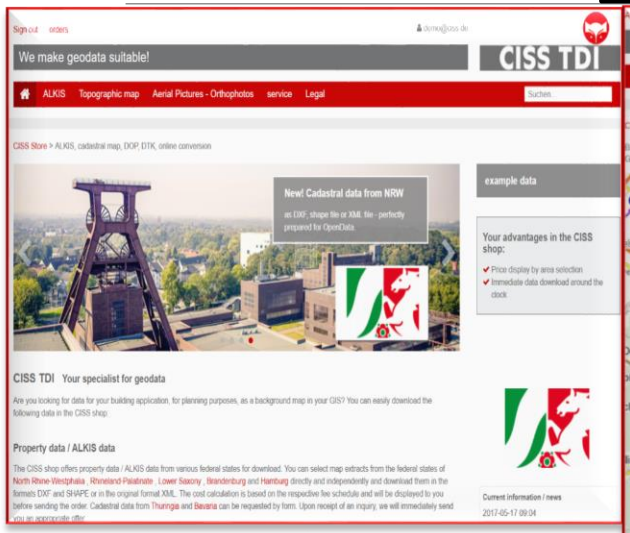
- Core Modules
- Dependencies

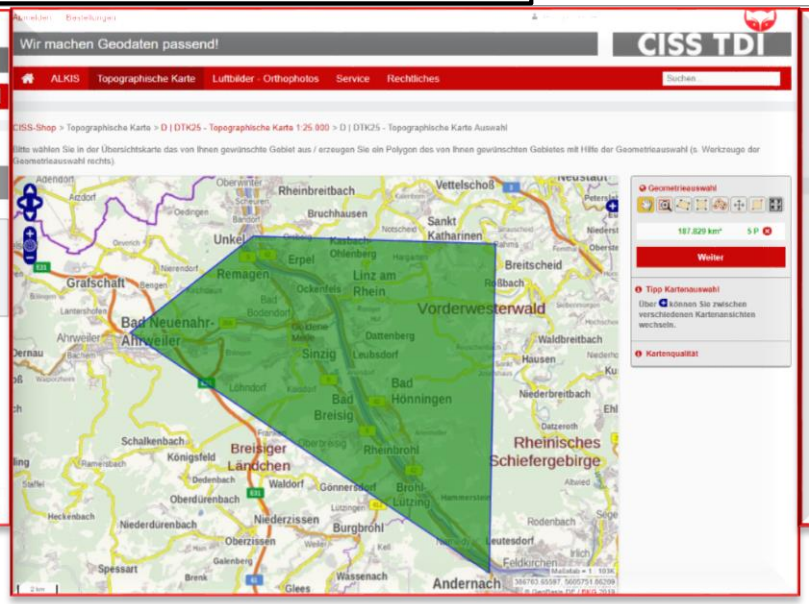


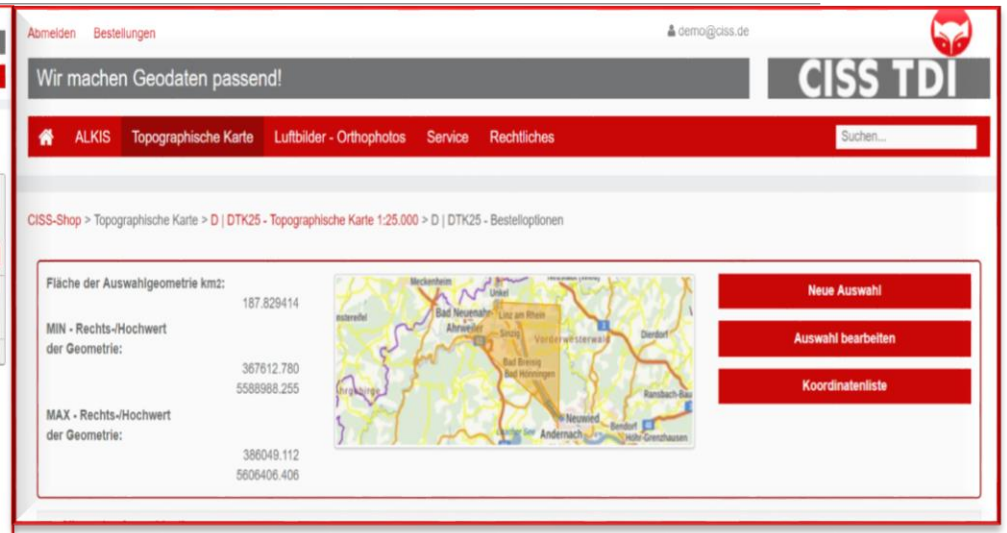
CURRENT ARCHITECTURE

The Architecture

- Core Modules
- Dependencies







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- **The Blueprint**
  - Baseline modules
  - Transformations and *Indexing (Serialize PHP → Unserialize PHP → GeoJSON → Spatial Search)*
  - Metadata Quality Check – CISS® QAC API

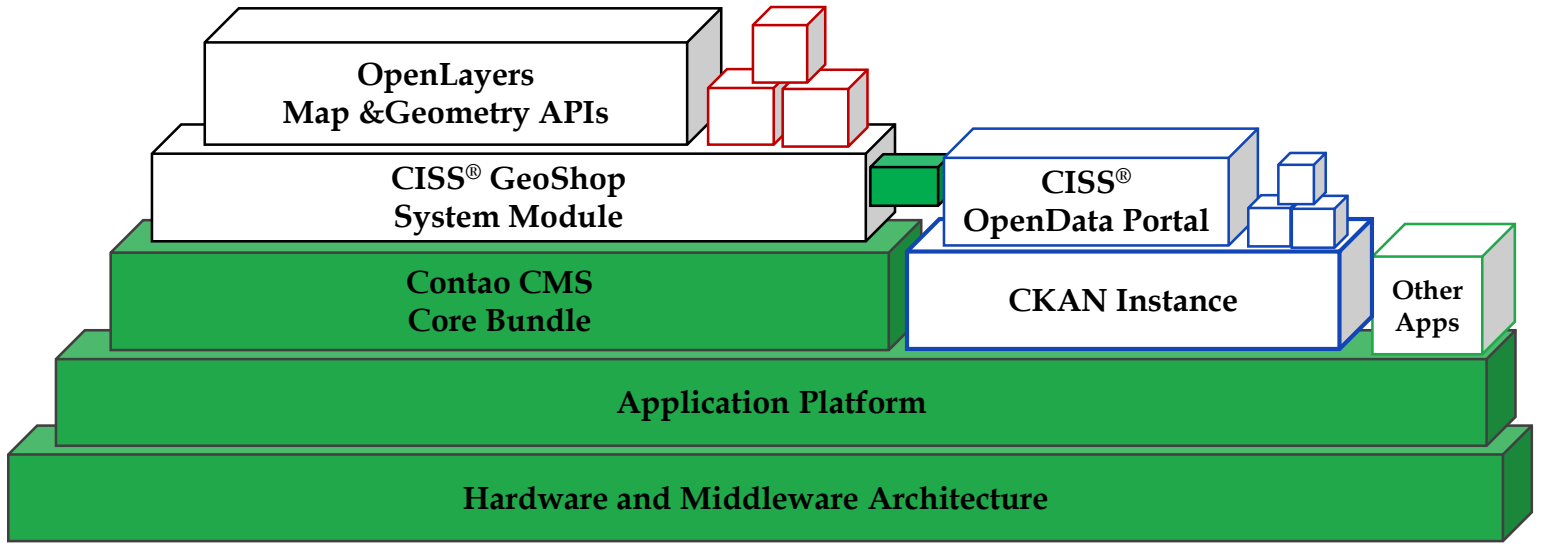
Blueprint Design Methodology

- Use what > 80% of current users already know – Our Shop

Building Blocks

The Blueprint

- Baseline modules
- Transformations and *Indexing (Serialize PHP → Unserialize PHP → GeoJSON → Spatial Search)*
- Metadata Quality Check – CISS® QAC API



ARCHITECTURE (Work-in-progress)

The Blueprint

- Baseline modules
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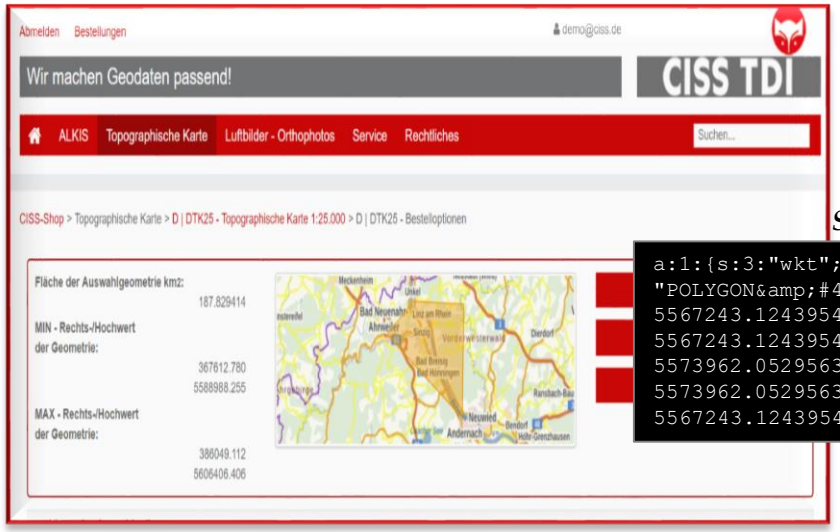

Serialized PHP

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5567243.12439547,380841.08706572774
5567243.12439547,380841.08706572774
5573962.0529563725,373511.3468174699
5573962.0529563725,373511.3468174699
5567243.12439547&amp;#41;&amp;#41;";}
```

unserialize(string $Str)
htmlentities(string $str)

Unserialized PHP (an Array)

```
POLYGON ((373511.3468174699
5567243.12439547,380841.08706572774
5567243.12439547,380841.08706572774
5573962.0529563725,373511.3468174699
5573962.0529563725,373511.3468174699
5567243.12439547))
```

geoJSON = {}

GeoJSON

```
geoJSON = {
    "type": "POLYGON",
     "coordinates": [[ 373511.3468174699
5567243.12439547,380841.08706572774
5567243.12439547,380841.08706572774
5573962.0529563725,373511.3468174699
5573962.0529563725,373511.3468174699
5567243.12439547]]
}
```

Crawl CKAN Instance

```
http://localhost:5000/api/3/action/package_search?q=geoJSON
```

Harvest Dataset from external sources

```
harvester gather_consumer
harvester fetch_consumer
Harvester purge_consumer
```

Add a new index into CKAN based on the crawled dataset

```
(venv).../src/ckan$ paster Paster search-index geoJSONcrawled_dataset_{{geo_name}}]
```

The Blueprint

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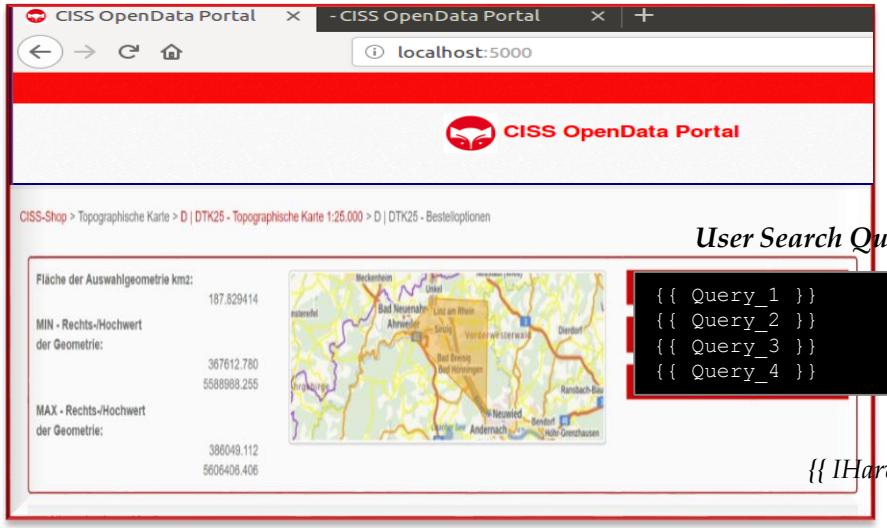


User Search Query

```
{{ Query_1 }}
{{ Query_2 }}
{{ Query_3 }}
{{ Query_4 }}
```

Crawl, harvest & Display [QAC Options]

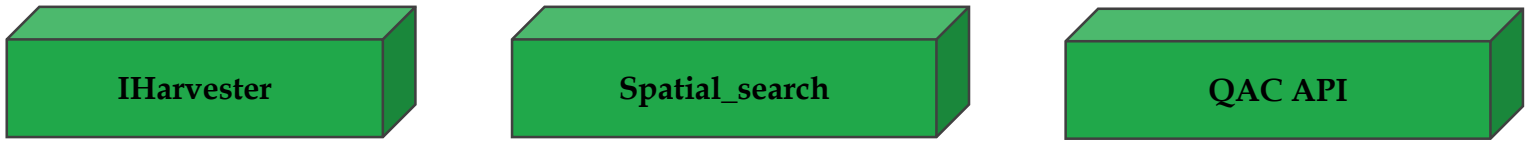
```
{{ Query_response 1 }}
{{ Query_response 2 }}
{{ Query_response 3 }}
{{ Query_response 4 }}
```

QAC

```
{{ Dataset_Metrics }}
{{ Dataset_QAC Value }}
...
```

{{ IHarvester, spatial_query, spatial_metadata }}

QAC API



Implementation Blocks

➢ Summary & Conclusion

❖ The Alphas
- LIMBO → mCLOUD → CISS® OpenData Portal

❖ The Architecture
- CISS® GeoShop → Architecture, Core Modules, Dependencies

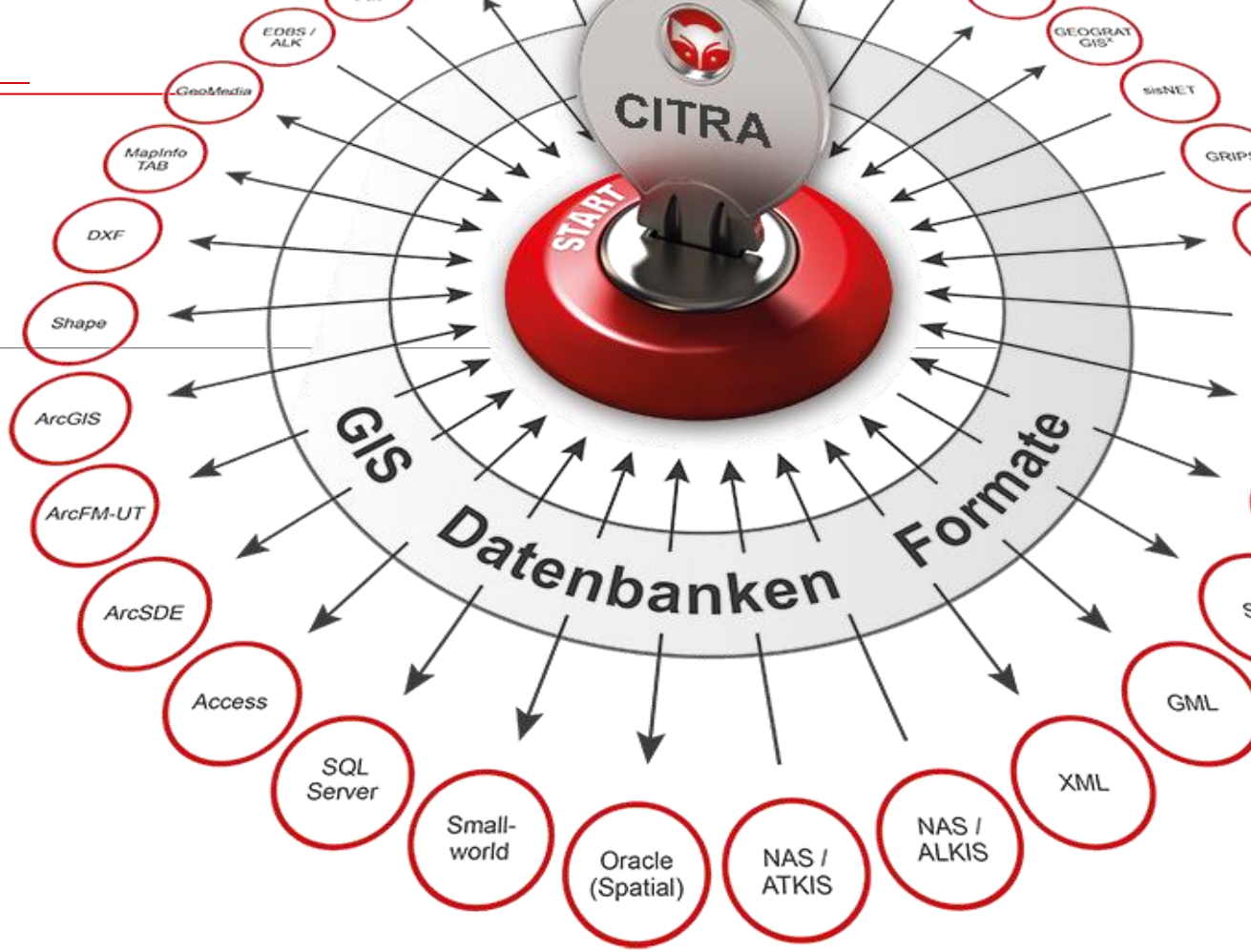
❖ The Blueprint
- CISS® Open-Data Portal → Architecture, Transformation, Indexing & CISS® Quality Assurance Center API

. . . Dankeschön | Je vous remercie | GRAZIE | Thank You | Kiitos | Gracias | Obrigado | Gratias ago tibi | Shukraan jazilaan | Xièxiè . . .

CISS TDI

Fragen?


QUESTION
ANSWER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Oracle (Spatial)
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